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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

March 20, 1996

William F. Caton
Secretary
Federal Communications Commission
1919 M. Street, N.W.
Washington D.C. 20554

Re: Ex parte contact in CC Docket No. 94-1
(LEC Price Cap Performance Review)

Dear Mr. Caton:

During the afternoon of March 19, 1996, Dr. Lee L. Selwyn, Patricia D. Kravtin and the undersigned, on behalf of the Ad Hoc Telecommunications Users Committee, met with members of the Tariff Division of the Common Carrier Bureau to discuss the above-referenced docket. The substance of the discussion at the meeting is reflected on the enclosures hereto, which were distributed to Commission personnel at the meeting.

Sincerely,

James S. Blaszak

Enclosures

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ESTABLISHING THE X-FACTOR
FOR THE FCC LONG-TERM
LEC PRICE CAP PLAN

Price Cap Performance Review for Local Exchange Carriers

CC Docket 94-1

Ad Hoc Telecommunications Users Committee

March, 1996

ECONOMICS AND
TECHNOLOGY, INC.

Empirical data requirements

At. para. 15 of the *Fourth Further Notice*, the Commission declared that:

> **Any party submitting studies, proposed methods for calculating an X-factor, or other empirical information must furnish promptly upon request by Commission staff or any party to this proceeding workpapers and any other data necessary to replicate the results submitted in this proceeding. If a party fails to do so, we will accord no weight to those studies, methods, or empirical information in our deliberations.**

The "Simplified" USTA/Christensen TFP study cannot satisfy this requirement:

- ✓ **The results for the nine company sample (1984 to 1993 study period) cannot be replicated except at a very high level – key pieces of information are missing**
- ✓ **The data provided for the nine company sample does not reconcile to the data used for the eleven company sample (1988 to 1993 study period)**
- ✓ **The data provided on LEC and US long-term input price results do not permit replication except at a very high level**

Interstate vs. Total Company TFP

A permanent X-factor for use in the interstate jurisdiction must reflect interstate productivity and other cost conditions.

- **The Christensen/USTA study calculates *total company* TFP.**
- **There is compelling evidence that those services that are disproportionately represented in the interstate jurisdiction are experiencing significantly above-average productivity growth.**
- **Higher rate of output growth for most interstate services.**
- **Greater gains from mechanization and technological advancement in services subject to interstate jurisdiction than for total company service mix**
- **Input growth in interstate jurisdiction can be reasonably (and conservatively) approximated by total company input growth**

Interstate vs. Total Company TFP

Sources of higher-than-average interstate services TFP growth:

- ***Higher rate of demand growth for most interstate services.***

Individual subscriber access lines	3.0%
Total (local+toll, intrastate+interstate)	
Dial Equipment Minutes (DEMs)	3.7%
Interstate switched access minutes	10.0%

- ***Differences in the input mix for individual services.*** Subscriber access lines involve a highly stable technology and exhibit a relatively high labor component for installation, maintenance and retailing functions vis-a-vis switched services

- ***Disproportionate presence of highly capital-intensive, switched services in the interstate jurisdiction.***

Switched services revenue shares:	
Interstate	80%
Intrastate	50%

Interstate vs. Total Company TFP

If FCC and state X-factors were based on *total company* TFP, the presence of interstate costs that are growing more slowly than those for state-regulated services will produce undesirable results:

- **Interstate prices will increase at a faster rate than costs, leading to windfall earnings growth. LECs will tend to elect the X-factor option that eliminates sharing and an earnings cap (as five of the RBOCs have done) and will thus be able to amass and retain persistent, excessive interstate earnings.**

- **State prices will increase at a *slower* rate than costs, leading to persistent *underrecovery* and underearnings. The same LECs that are enjoying windfall interstate earnings will be able to invoke low-end earnings protection mechanisms or, potentially, seek to invoke fifth amendment protection against confiscation.**

Even if combined state and interstate earnings are reasonable, the separate jurisdictional treatment of each will permit the same LEC to keep the interstate windfall while claiming poverty in the states.

Adjusting for LEC input price changes

The LEC input price differential (vis-a-vis GDP-PI) should be incorporated into the X-factor on the basis of an economically and statistically meaningful short term trend covering the entire post-divestiture period.

- **Statistical analysis consistently demonstrates structural break occurs at the time of divestiture**

- **USTA vacillates between reliance on the long-term input price differential trend (which is not relevant in a competitive input market environment) and reliance on an unreasonably truncated sample period (at odds with Christensen's own position that short-run year-to-year changes are subject to random variation)**

- **The post-divestiture LEC input price differential is itself understated because it relies upon asset price deflators that fail to capture hedonic effects and that suffer from other serious deficiencies.**

  - **Established in studies cited in ETI Report, e.g., Gordon, Flamm.**

Measurement of changes in LEC input quantity - Cost of Capital

Christensen incorrectly measures the cost of capital in his capital "rental price" formula by using as a proxy, the US economy cost of capital implicit in the US National Income and Products Accounts (NIPA)

- **The cost of capital used in the rental price formula should be the expected or *ex ante* rate of return**
- **Christensen's choice of proxy is a poor one:**
  - **No evidence that telephone industry cost of capital will necessarily follow year-to-year changes in US cost of capital**
  - **Incorrectly assumes away LEC/US input price differences**
  - **Inconsistent with BLS**
    - **BLS does not utilize economywide cost of capital in detailed industry productivity studies, but rather industry specific cost of capital**
    - **BLS employs method similar to Norsworthy**

Measurement of changes in LEC input quantity - Depreciation

Christensen did not use, but should have used, the depreciation rates prescribed by the Commission for LEC plant.

- **The Commission's prescribed depreciation rates are more appropriate because they more accurately reflect plant lives applicable for LECs and are consistent with the RORR benchmark upon which the price cap paradigm is constructed.**

- **The Commission's prescribed rates have been set based upon studies conducted by the LECs themselves, relating specifically to the capital assets used by the LECs in providing telecommunications services.**

The rates selected by Christensen are based upon a chain of studies conducted by various economists for business assets for the economy as whole and for a much earlier time period than the post-divestiture period.

Measurement of changes in LEC input quantity - Depreciation

The chain of studies:

- **The rates employed by Christensen were taken from a 1990 study conducted by D. W. Jorgenson**
- **The cited Jorgenson study indicates that it relies on "economic" depreciation rates from a 1990 Jorgenson and Yun study**
- **Further research finds the referenced economic depreciation rates in a related 1991 work by Jorgenson and Yun, *Tax Reform and the Cost of Capital***
- **The depreciation rates in the 1991 Jorgenson/Yun study were derived from a 1981 study by Hulten and Wykoff, *The Measurement of Economic Depreciation***
- **The Hulten and Wykoff study referenced in both the Jorgenson and Jorgenson/Yun studies estimates the form and rate of economic depreciation using an econometric technique as explained in yet another 1981 Hulten and Wykoff study, *The Estimation of Economic Depreciation Using Vintage Asset Prices: An Application of the Box-Cox Power Transformation*;**
- **The later-referenced Hulten and Wykoff study indicates that the regression technique was applied to empirical data taken from the 1956 to 1971 time period not involving assets used by telephone companies.**

Specific revisions quantified in the Ad Hoc study

- Calculation of TFP for services subject to interstate jurisdiction;
- Calculation of LEC-US input price differential for entire post-divestiture period;
- Substitution of published BEA/BLS asset price deflator data for LEC TPI series (subsequently incorporated in Christensen revised study);
- Adjustment to the formula for the rental price of capital to include cost of capital that reflects LEC (vs. US) rate of return and differential tax effect of debt versus equity;
- Replacement of general, out-of-date economy-wide depreciation rates with current FCC-prescribed LEC depreciation rates; and
- Development of a sensitivity analysis for the effects of hedonic price changes for inputs used by the LECs.

Results of the corrected X-factor analysis

SUMMARY OF RESULTS
INTERSTATE ONLY X-FACTOR
1984 to 1993 STUDY PERIOD

	TFP	Input Price Diff.	CPD	X-Factor
Corrected	6.0%	3.4%	0.5%	9.9%
Corrected Quality Adjusted	5.5%	4.3%	0.5%	10.3%

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DEC 26 1995

Decision 95-12-052 December 20, 1995

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's Own Motion Into the Second Triennial Review of the Operations and Safeguards of the Incentive-Based Regulatory Framework for Local Exchange Carriers.	)	I.95-05-047 (Filed May 24, 1995)

(See Appendix A for appearances.)

INTERIM OPINION

Summary

In this decision, we find that the 5% productivity factor for Pacific Bell is inappropriate for the next three years primarily because the underlying assumptions and data on which the 5% rate was based are obsolete. Similarly, we find that the 5% productivity factor for GTEC is inappropriate for the time period following the expiration of the settlement entered into by GTEC.[1] However, we also find it premature to eliminate the price cap formula at this time. We further find that productivity

[1] For 1996, a settlement entered into by GTEC adopts this approach. We invite GTEC to file a petition to modify D.93-09-038.

The Financial Impact of The Regulatory Program

The NRF framework requires a review of the financial impact of the regulatory program.

Pacific's witness Evans testified as to the damaging effect of the price cap formula upon the finances of the company.[102]

DRA, AT&T, CCTA, and TURN emphatically contest the LECs' claims of deteriorating financial performance as exaggerated and not primarily the result of the price cap mechanism.

Reviewing Pacific's and GTEC's NRF monitoring reports, DRA notes that when compared with total company operating revenues for January to June 1994, Pacific's January to June 1995 total company operating revenues have declined by approximately 2.3 percent, or $200 million annually. Similarly, it appears that GTEC's total company operating revenues for January to June 1995 have decreased approximately 5% from their level for January

[102] Exhibit 29 at 1, 6 and 16.

to June 1994. The Proposed Decision notes that for GTEC, June 1995 total company operating revenues actually exceeded June 1994 total company operating revenues.[103] One month's data, however, is much less meaningful than the long term negative trend.

Generally, Pacific's and GTEC's intrastate rates of return have met or exceeded the market-based rate of return.

Actual Intrastate Rate of Return (in percents):

Year	P*B ROR	GTEC ROR	Adopted Market ROR
1990	12.39	13.41	11.50
1991	11.31	14.09	11.50
1992	12.03	14.20	11.50
1993	9.51	13.28	11.50
1994	11.17	12.33	10.00, (10.50 for GTEC)

Source: Exhibit 60

GTEC exceeded the market-based rate of return for every year between 1990 and 1993. Had GTEC not entered into a settlement agreement, the company would have exceeded the return that would have been considered for it in 1994. Pacific's intrastate rate of return was close to or exceeded the market-

[103] PD-01-014 and GD-04-00, respectively. Monthly operating revenues for Pacific for January 1994 through July 1995 and for GTEC for January 1994 through June 1995. (DRA Brief at 14.)

based rate of return for every year from 1990 through 1994 with the exception of 1993. We wish that such a trend would and could continue. Unfortunately, the most recent Commission data on monthly RORs for 1995[104] shows a starkly different financial picture:

Month	P*B ROR	GTEC ROR
Jan	11.45	7.875
Feb	8.89	11.080
Mar	6.24	9.963
Apr	8.99	8.050
May	11.27	3.008
Jun	6.59	7.329
Jul		14.053
Aug		7.466
Y-T-D	8.92	8.602

Sources: P.O. 01-27; G.O. 04-00

How much of Pacific's financial situation is attributable to the implementation of NRF? The evidentiary record does not support the view that the majority of the decline in the company's revenues is the result of NRF; but neither does it show that NRF has not been a major contributing factor in the declining financial positions of the LECs.

[104] The adopted ROR for 1995 is 10.00.

The S.G. Warburg Research Statistical Summary[105] tabulated Pacific's revenues from 1984 through 1994. Pacific witness Evans presented a list of revenues from 1984 through 1989.[106] Both exhibits show revenues declining from 1986-1987, from 1988-1989, from 1989-1990 and from 1990-1991. The only post-NRF year in which revenues declined was the first year of the operation of NRF. Exhibit 16, measuring the total return indices, price change plus reinvested dividends for the RBOCs, indicates that since 1984, Pacific, as the subsidiary of Pacific Telesis Group, has placed in the middle of the RBOCs/Regional Holding Companies (RHC) in stock performance. Pacific's return on equity for the 12-month period ending June 30, 1995 was commensurate with other RHCs.[107] Moreover, according to Exhibit 65,[108] a May 1995 Salomon Brothers report, Pacific Telesis'

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[105] Exhibit 41 at 20.

[106] Exhibit 45, Bates Stamp 000664.

[107] Exhibit 58 at 2-6.

[108] *Regional Bell Operating Companies (RBOCs) -- Creeping Competition in Local Service Implies Shrinking Margins and Market Share for RBOCs* at 3.

dividend yield is 8.1%, the highest[109] of the RBOCs. The report views Pacific's payout as too high and not sustainable.[110] Similarly Duff Phelps has reduced Pacific's credit rating.[111]

A further review of the record sustains both Salomon Brothers' judgment, and our own concerns that revenue contraction erodes Pacific's financial situation. The record shows that for 1984-1989, Pacific's revenues on a normalized basis grew at a 2.8% compound annual growth rate (CAGR), while in the 1990-1994 period under the GDPPI minus "X" form of regulation, revenues grew at only a .2% CAGR.[112] Moreover, a comparison of net income growth conveys an even gloomier picture. The record shows Pacific has had no positive net income growth over the last five years. While net income for the 1984-1989 time period grew at 7.2% CAGR, net income for the 1990-1994 period under the GDPPI minus "X" form of price cap regulation declined at a 2.2% CAGR.[113]

Pacific maintains that the Telesis wireless spinoff is irrelevant to this proceeding. However, as TURN suggests, a

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[109] Second highest is NYNEX at 5.7%.

[110] Confusingly, the Salomon report often interchanges its discussion of RBOCs and RHCs.

[111] Mr. Evans (for Pacific) Exhibit 29 at 14.

[112] Mr. Evans (for Pacific) Exh. 29, Att, p. 10.

[113] Id. at 12-13.

careful examination of the Pacific Exhibit 29[114] comparison of CAGRs of the LEC and six RBOCs between 1984-1994 and Exhibit 42 challenge the company's assertion. The effect of this spinoff by Pacific Telesis, not Pacific Bell, obviously complicates the financial market's assessment of the holding company, but it has no direct affect on Pacific Bell's revenues. Clearly the spinoff by the parent holding company does not preclude the modification of regulation for Pacific Bell, the regulated subsidiary.

While we appreciate the cumulative effect of the price cap formula upon the LECs, it is clear that the state's economy has also had a definite impact on revenues. Forecasts predict that California can expect to outperform the nation in the next few years[115] and we hope this is the case. Testimony indicates that Pacific will continue to realize efficiency gains,[116] but based on ample evidence in the record, we find it unrealistic to believe that Pacific can continue to realize additional efficiency gains at current levels. Pacific has already achieved the easy gains by becoming highly efficient.[117] Additional

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[114] Exhibit 29 at 11: Table 2 - "Telephone Company Revenue $M".

[115] Exhibit 58 at 2-6.

[116] Exhibit 29 at 9; 4 RT 613, line 17 to 614, line 5.

[117] Mr. Evans (for Pacific) Exh. 29, pp. 5-9.

efficiencies are more difficult to achieve, as pointed out by numerous expert witnesses.[118] We conclude that Pacific's declining revenues are the result of numerous factors, with the effects of NRF particularly significant.

As a policy matter, the Proposed Decision attached inadequate weight to the consequences of the Price Cap formula on the financial markets. The forced reductions lock the LECs into a constricting internal cost constraint. The record shows that Pacific had 13,915 fewer employees at the end of 1994 than at the beginning of incentive regulation -- a reduction of over 20%. [119] Although the record on this point is not well developed, the comments of the Communications workers of America make us wonder whether such reductions in labor force continue without threatening the state's infrastructuring of skilled workers.

These same automatic price reductions can present an obstacle to the LECs in the capital markets and the ability of LECs to finance infrastructure. Financing for infrastructure can be hindered when regulation creates an automatically declining

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[118] Id. at 7-9; Exh. 41, p. 51; Dr. Schmalensee (for Pacific) Exh. 1. Att. 1, p. 11; Dr. Christensen (for Pacific) Exh. 6, Att. pp. 23-25, 29.

[119] Mr. Evans (for Pacific) Exh. 29, att., pp. 8-9; 3 TR. 559

revenue stream. Regulators know well that revenue trajections are key to financial ratings.

In the last review, we undertook what appears to be the controversial examination and determination of the appropriate productivity factor. D.94-06-011 reaffirms our Phase II resolution "to look to a target which is a differential productivity adjustment supported by information outside the utility's control with a 'stretch' added."[120] Although the prospect of the BLS's long-promised index continues to hold some fascination for the Commission, national fiscal reality indicates that it is likely our efforts to open telecommunications markets have a good chance of succeeding before this long awaited study becomes a reality. To guide our policy deliberations, we must look elsewhere for one or several studies "that capture the essential parameters of the methodology that we have held to be reasonable."[121] Pacific presented Dr. Christensen's direct testimony[122] to satisfy our request.

Among other determinants, the compressed schedule of this phase of the proceeding complicated the valuation of Dr. Christensen's study. The Commission would have greatly

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[120] D.94-06-011, mimeo. at 37.

[121] Id.

[122] Dr. Christensen (for Pacific), Exhibit 6.

preferred the study to have been accessible for validation by all parties. Instead, the Christensen study appears before us as a Pacific or LEC study. Thus, assigning the proper weight to this study requires careful consideration.

Based on the results of his study, Dr. Christensen recommends a productivity or "X" factor of 2.1%. As Pacific emphasizes, Dr. Christensen's short-term study results are consistent with the long-term telephone industry TFP differential.[123]

Pacific and GTEC maintain that a 2% "X" factor will continue to pose a tough challenge. This, notwithstanding the fact, that adoption of the LECs' modified price cap formula will mean for California ratepayers approximately a 1%[124] increase in their telephone rates compounded annually: totaling $55 million, $110 million, $165 million, and $330 million, respectively, from 1996 to 1998.

Pacific and GTEC contend that the LECs have not received the promised rewards of NRF. During the six years of the NRF, the companies have either met or exceeded the adopted reasonable rate of return. None of the LECs' experts assert that

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[123] Pacific Brief at 31.

[124] Assuming a 1% inflation factor. Pacific Brief at 41, footnote 126.

the companies would have fared better under rate-of-return regulation.[125] Retrospectively, the price cap regulation appears to have produced reasonable rates and earnings. Prospectively, our monitoring reports containing the ROR's for 1995 indicate that these days of solid earnings have come to an end. We suspect that the simple productivity gains realized in the initial years of price cap regulation have come to an end.

The Proposed Decision did not accept Dr. Christensen's study on TFP differential. The Proposed Decision cited a series of factors that led to its determination. The PD stated that:

> During cross-examination,[126] it was revealed that Dr. Christensen was unable to explain the methodology that was used to gather the data upon which his results depend and he was unable to explain how the errors seemingly corrected in his January 1995 update were discovered or corrected.[127] CCLTC notes that the magnitude of a number of the unexplained errors is substantial.[128] Dr. Christensen also testified that he had no knowledge of how certain significant costs were calculated by the LECs. He was unaware

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[125] 2 RT 264 and Exhibit 35 at 5.
[126] 2 RT 200-239.
[127] Exhibit 8.
[128] CCLTC Brief at 6-13.

> of whether or not gross inconsistencies exist with the methodologies used to gather data for his study. GTEC's witness Dr. Duncan stated that if gross inconsistencies occurred in the calculation methods: "...okay, you're going to run into problems."[129]

Finally, the Proposed Decision[130] notes that Dr. Christensen admitted that he did not know precisely how an integral component of his TFP calculation, the "Telephone Plant Indexes" (TPIs),[131] were computed[132] and that he could not supply any work papers behind the TPI figures that were provided to him by the LECs.[133]

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[129] 5 RT 792.

[130] Proposed Decision, p. 41.

[131] TPIs, developed by the individual Regional Bells and the other LECs, reflect changes in the cost of key capital input factors, like central office equipment, wire and cable, and transmission equipment (among others). Unlike standard, published indices like the GDPPI and the Consumer Price Index, the TPIs are not equalized price series published by a government agency or other independent source. Rather, they are prepared individually by each RBOC on a highly proprietary basis. CCLTC Brief at 10.

[132] 2 RT 197-198.

[133] Exhibit 8.

Although these issues led the PD to conclude that Dr. Christensen's study was not a reasonable substitute for the BLS index, we believe that the PD failed to assess properly the valuable information provided by Dr. Christensen in his testimony. First, we note that Dr. Christensen testified that the methodology used to gather data was based upon specifications provided by the Bureau of Labor Statistics.[134] Dr. Christensen testified that the data provided to him were provided to the BLS for use in the long awaited BLS study of LEC productivity growth.[135] Second, although the PD notes Dr. Christensen's inability to explain how the errors were discovered or updated, the vast majority of study data were verified with Form M data formally filed with the FCC.[136] Moreover, the Proposed Decision errs in misinterpretation CCLTC's assertion that the number of errors are substantial as a characterization that the study was substantially in error. Even if the number of errors detected and corrected was large, the overall effect of these error

[134] Dr. Christensen (for Pacific) 2 Tr. 199.
[135] Dr. Christensen (for Pacific) 2 Tr. 193.
[136] Dr. Christensen (for Pacific) 2 Tr. 196-7